CLAIMS

What is claimed is:

1. A color wheel position monitor for monitoring a position of at least one color wheel in a digital projector, the color wheel being moveable between an engaged position that is in a light path, and a disengaged position that is out of the light path, comprising:

a) a color wheel shifting device, configured to control the position of the at least one color wheel; and

b) a microprocessor, configured to detect and store in memory an amount of time that the at least one color wheel is disposed at the engaged position.

2. A color wheel position monitor in accordance with claim 1, wherein the at least one color wheel comprises two color wheels, and the engaged and disengaged positions comprise one engaged position and two disengaged positions for each color wheel.

3. A color wheel position monitor in accordance with claim 2, wherein the engaged and disengaged positions comprise a first position wherein a first color wheel is engaged and a second color wheel is disengaged, a second position wherein the second color wheel is engaged and the first color wheel is disengaged, and a third position wherein neither the first nor the second color wheels are engaged.

4. A color wheel position monitor in accordance with claim 3, wherein the microprocessor is configured to detect and store in memory

a) a cumulative amount of time during which the first color wheel is engaged;

b) a cumulative amount of time during which the second color wheel is engaged; and

c) a cumulative amount of time during which neither color wheel is engaged.

5. A color wheel position monitor in accordance with claim 1, wherein the color wheel position monitor is further configured to detect and store in memory a total number of times the position of the color wheels is switched.

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6. A color wheel position monitor in accordance with claim 2, wherein the color wheels comprise red, green, and blue filter sectors for filtering substantially white light from a projector lamp associated with the projector, and wherein one of the color wheels further comprises a transparent sector.

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7. A color wheel position monitor in accordance with claim 1, further comprising a projector lamp having low and high intensity settings, respectively.

8. A color wheel position monitor in accordance with claim 7, wherein the
15   microprocessor is further configured to detect and store in memory an amount of time that the at least one color wheel is disposed at the engaged position with the projector lamp in the low and high intensity settings, respectively.

9. A color wheel position monitor in accordance with claim 1, wherein the
20   at least one color wheel comprises red, green, and blue filter sectors for filtering substantially white light from a projector lamp associated with the projector.

10. A color wheel position monitor in accordance with claim 1, further comprising a data output system, configured to allow a user to obtain data
25   representing the amount of time that the at least one color wheel is disposed at the engaged position.

11. A color wheel position monitor in accordance with claim 10, wherein the data output system is selected from the group consisting of an on-screen
30   projector control system, a network connected control system, a world wide web control and access system, and a physical data link to another digital device.

12. A digital projector device, comprising:

a) a projector lamp, configured to project light along a light path;

b) a first color wheel, having three filter sectors, configured to filter light from the projector lamp;

5   c) a color wheel shifting device, configured to move the first color wheel between an engaged position intersecting the light path, and a disengaged position outside the light path; and

d) a color wheel position monitor, configured to detect and store in memory a cumulative amount of time that the first color wheel is in the 10   engaged and disengaged positions, respectively.

13. A device in accordance with claim 12, further comprising:

a) a second color wheel, configured to move between an engaged position intersecting the light path, and a disengaged position outside the 15   light path, the position of the second color wheel being controlled by the color wheel shifting device;

b) the color wheel shifting device being configured such that only one of the first and second color wheels can be engaged at a given time; and

20   c) the color wheel position monitor being further configured to detect and store in memory a cumulative amount of time that the second color wheel is in the engaged and disengaged positions, respectively.

14. A device in accordance with claim 13, wherein at least one of the first 25   and second color wheels further comprises a transparent sector.

15. A device in accordance with claim 13, further comprising a data output system, associated with the color wheel position monitor, configured to allow a user to obtain data representing the cumulative amount of time that the 30   first and second color wheels are engaged and disengaged, respectively.

16. A device in accordance with claim 12, wherein the projector lamp has a low intensity setting and a high intensity setting, and wherein the color wheel position monitor is further configured to detect and store in memory a cumulative amount of time that the first color wheel is in the engaged and disengaged positions, with the lamp in high intensity and low intensity settings, respectively.

17. A digital projector device, comprising:

a) a projector lamp, configured to project white light along a light path to a digital mirror device, the lamp having a low intensity setting and a high intensity setting;

b) at least one rotating color wheel, having colored sectors for filtering light prior to incidence of the light on the digital mirror device;

c) a color wheel shifting mechanism, configured to selectively move the at least one color wheels, the color wheel shifting mechanism having

(i) a first position wherein the at least one color wheel is disposed in an engaged position intersecting the light path; and

(ii) a second position wherein the at least one color wheel is not disposed in the engaged position; and

d) a color wheel position monitor, configured to detect and store in memory data representing

(i) a cumulative amount of time during which the at least one color wheel is in the engaged position and the lamp is in the high intensity mode;

(ii) a cumulative amount of time during which the at least one color wheel is in the engaged position and the lamp is in the low intensity mode;

(iii) a cumulative amount of time during which the at least one color wheel is not in the engaged position and the lamp is in the high intensity mode;

(iv) a cumulative amount of time during which the at least one color wheel is not in the engaged position and the lamp is in the low intensity mode; and

(v) a total number of times the position of the at least one color wheel is switched.

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18. A device in accordance with claim 17, further comprising a data output system, configured to allow a user to obtain data detected and stored by the color wheel position monitor.

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19. A device in accordance with claim 18, wherein the data output system is selected from the group consisting of an on-screen projector control system, a network connected control system, a world wide web control and access system, and a physical data link to another digital device.

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20. A device in accordance with claim 17, wherein the first and second color wheels comprise red, green, and blue filter sectors, and wherein one of the first and second color wheels further comprises a transparent sector.

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21. A color setting monitoring system for a digital projector having at least two color settings, comprising:

a gamut generator, configured to control the at least two color settings of the projector; and

a controller, configured to detect and store in memory an amount of time that the projector is configured in each of the at least two color settings.

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22. A color setting monitoring system in accordance with claim 21, wherein the projector further includes a projector light source having at least two light intensity settings, and wherein the controller is further configured to detect and store in memory an amount of time that the projector is configured in each of the at least two color settings with the light source in each of its light intensity settings.

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23. A color wheel position monitor for monitoring a position of at least
one color wheel moveable between engaged and disengaged positions in a
digital projector, comprising:

        a) means for controlling the position of the at least one color
wheel; and

        b) means for detecting and storing in memory an amount of time
that the at least one color wheel is at the engaged position.

24. A method for monitoring a position of at least one color wheel
moveable between engaged and disengaged positions in a digital projector,
comprising the steps of:

        a) detecting when the at least one color wheel is disposed at the
engaged position; and

        b) storing in memory data representing an amount of time that the
projector is operated with the at least one color wheel disposed at the
engaged position.

25. A method in accordance with claim 24, further comprising the steps
of:

        c) detecting an intensity setting of a projector light source having
at least two intensity settings; and

        d) storing in memory an amount of time that the projector is
operated with the at least one color wheel disposed at the engaged
position with the light source set at one of the at least two intensity
settings.

26. A method in accordance with claim 24, wherein the at least one color
wheel comprises two color wheels, the engaged position being alternatingly
exclusive between the two color wheels, and wherein:

        e) the step of detecting when the at least one color wheel is
disposed at the engaged position further comprises detecting when each

of the two color wheels are disposed at the engaged position, respectively; and

f) the step of storing in memory an amount of time that the projector is operated with the at least one color wheel disposed at the engaged position comprises detecting when each of the two color wheels is disposed at the engaged position, respectively.

27. A method in accordance with claim 24, further comprising the step of viewing the data stored in memory representing the amount of time that the projector is operated with the at least one color wheel disposed at the engaged position.